



Avid Configuration Guidelines
HP Z820 Dual Six-Core / Dual Eight-Core CPU Workstation



1.) HP Z820 AVID Qualified System Specification:

Z820 / AVID Qualified Operating System:

Microsoft® Windows 7 Professional 64-bit Edition with Service Pack 1

Z820 Hardware Configuration

Supported CPU Choices

- 1.) Dual Intel® 6-Core Xeon® E5-2640 Processors @ 2.5GHz 15MB cache / 1600MHz memory
The 6-core Xeon® E5-2640 @ 2.5GHz Processors are qualified for Media Composer 5.5.3.6, Symphony 5.5.3.6 and NewsCutter 9.5.3.6 or higher.
(The 6-Core Xeon® E5-2640 Processors will run the 1600MHz memory at 1333MHz speed due to the speed limitation of the memory controller in the E5-2640 Processor).
- 2.) Dual Intel® 8-Core Xeon® E5-2665 Processors @ 2.4GHz 20MB cache / 1600MHz memory
IMPORTANT NOTE: The 8-Core Xeon® E5-2665 Processors @ 2.4GHz 20MB cache are qualified only for Media Composer 6.x , Symphony 6.x and NewsCutter 10.x or higher (The 8-core CPU's are not qualified with Media Composer 5.x , Symphony 5.x or NewsCutter 9.x)

Supported Video Card

- 1.) NVIDIA K4000 3GB PCI-e video board
- 2.) NVIDIA Quadro 4000 2GB PCI-e video board

System Disk Drive - 1TB (minimum recommended) SATA-II 3Gb/s 7200RPM

Standard AVID memory configuration: 16GB (8 x 2GB) DDR3 1600 ECC memory –
(Requires eight 2GB DIMMs, **DIMM sizes cannot be mixed sizes**)

2GB memory modules must be installed in the following memory slots:

CPU0-DIMM1, CPU0-DIMM3, CPU0-DIMM6, CPU0-DIMM8
CPU1-DIMM1, CPU1-DIMM3, CPU1-DIMM6, CPU1-DIMM8

Optional AVID memory configurations:

- A.) 16GB (4 x 4GB) DDR3 1600 ECC memory –
(Requires four 4GB DIMMs, **DIMM sizes cannot be mixed sizes**)

4GB memory modules must be installed in the following memory slots:

CPU0-DIMM1, CPU0-DIMM8
CPU1-DIMM1, CPU1-DIMM8

- B.) 32GB (16 x 2GB) DDR3 1600 ECC memory –
(Requires sixteen 2GB DIMMs, **DIMM sizes cannot be mixed sizes**)

2GB memory modules must be installed in the following memory slots:

CPU0-DIMM1, CPU0-DIMM2, CPU0-DIMM3, CPU0-DIMM4,
CPU0-DIMM5, CPU0-DIMM6, CPU0-DIMM7, CPU0-DIMM8
CPU1-DIMM1, CPU1-DIMM2, CPU1-DIMM3, CPU1-DIMM4,
CPU1-DIMM5, CPU1-DIMM6, CPU1-DIMM7, CPU1-DIMM8

- C.) 32GB (8 x 4GB) DDR3 1600 ECC memory –
(Requires eight 4GB DIMMs, **DIMM sizes cannot be mixed sizes**)

4GB memory modules must be installed in the following memory slots:

CPU0-DIMM1, CPU0-DIMM3, CPU0-DIMM6, CPU0-DIMM8,
CPU1-DIMM1, CPU1-DIMM3, CPU1-DIMM6, CPU1-DIMM8,

Memory configuration constraints - Memory configurations which use “unbalanced” memory configuration are not recommended or formally supported in AVID environments. Memory configurations which mix and match memory module sizes and locations will result in a poor performing, non-optimal operating environment.

2.) Qualified Operating Systems, Avid Client Editing Applications, Hardware and Shared-Storage support for the HP Z820:

- **8-Core Xeon® E5-2665 @ 2.4GHz - Media Composer / Symphony 6.x , NewsCutter 10.x or later**
- **6-Core Xeon® E5-2640 @ 2.5GHz - Media Composer / Symphony 5.5.3.6 , NewsCutter 9.5.3.6 or later**
- **Supported: Only Microsoft® Windows 7 Professional 64-bit Edition with SP1 (SP1 required)**
- **Not Supported – Any version of Microsoft® Windows XP or Vista**
- **Not Supported - Microsoft® Windows 7 – any 32-bit version, or any version of Home, Ultimate or Enterprise editions.**

Note regarding Service packs:

As of this writing Service Pack 1 is the current Service Pack release for Win7. SP1 is required for Media Composer 5.5.x, Symphony 5.5.x and NewsCutter 9.5.x or higher. As future Service Packs are released Avid will evaluate and announce formal support when testing is completed.

3.) Qualified O.S., Hardware and shared storage supported:

	Qualified / Supported
Nitris DX / Mojo DX	Yes
3 rd Party Qualified Hardware	See release notes and Avid website for information regarding supported 3 rd party hardware (vendor qualified)
Unity ISIS 1Gb Ethernet Client	ISIS 5000 / 7000 V4.x
Unity ISIS Hi-res (10 Gbit) client	ISIS 5000 / 7000 V4.x
Qualified Operating System	Win 7 Pro 64-bit
Service Pack	SP1 – Required
1394 Adrenaline DNA	N/A Not Supported
1394 Mojo-SDI DNA	N/A Not Supported
1394 Mojo-Analog DNA	N/A Not Supported

AVID qualified HBA info

AVID qualified HBA	AVID Part Number	Slot Location	Function
Vendor qualified 3 rd party hardware interface requiring: x4 PCI-E or lesser interface ¾ Length PCI form factor or smaller	Not stocked by AVID	#1	Vendor qualified 3 rd party hardware interface. See release notes and Avid website for information regarding supported 3 rd party hardware
Vendor qualified 3 rd party hardware interface requiring: x8 PCI-E or greater interface Full Length PCI form factor	Not stocked by AVID	#6	Vendor qualified 3 rd party hardware interface. See release notes and Avid website for information regarding supported 3 rd party hardware
Intel PRO 1000 PT	7030-20139-01	#3	Shared Storage: Unity ISIS Copper Gb-Ethernet Dual Gb ISIS Connectivity
Intel i350-T2 – Dual Gb NIC	Not stocked by AVID	#3	Shared Storage: Unity ISIS Copper Gb-Ethernet Dual Gb ISIS Connectivity
Intel PRO 1000 PF - ISIS	Not stocked by AVID	#3	Shared Storage: Unity ISIS Optical Gb-Ethernet
Myricom 10G-PCIE-8B-S	7030-30041-01	#3	Shared Storage: Unity ISIS 10Gb-Ethernet for Hi-Res client (ISIS 5000 / 7000)
Avid HIB, DX Interface HBA **	Active: 7030-30048-01 Active: 7030-20084-01 Passive: 7030-30021-01	#5	Avid DX Hardware Interface HBA
Atto R680	Not stocked by AVID	#1 or #4	Local SAS Storage Support – Avid VideoRAID ST (5-bay) Xtore StudioRAID 5Ti (5-bay)
LSI 9200-8e SAS controller	7030-30036-01	#1 or #4	SAS Local Storage: Xtore StudioRAID 16Re (16-bay) chassis Xtore StudioRAID 5Te (5-bay) chassis
Pro Tools hardware		#3 and / or #4	Pro Tools HDX , HDX / HD Native
Red Rocket Accelerator	Not stocked by AVID	#3, #4 or #6	Accelerator for RED files

**** [Avid DX Interface HBA Support Note: \(See reference pictures on page 7 of this guide\).](#)**

All 3 versions of the DX interface HBA are supported on the Z820 with Media Composer / Symphony and NewsCutter

- 1) Active DX interface HBA 7030-30048-01
- 2) Active DX interface HBA 7030-20084-01
- 3) Passive DX interface HBA 7030-30021-01

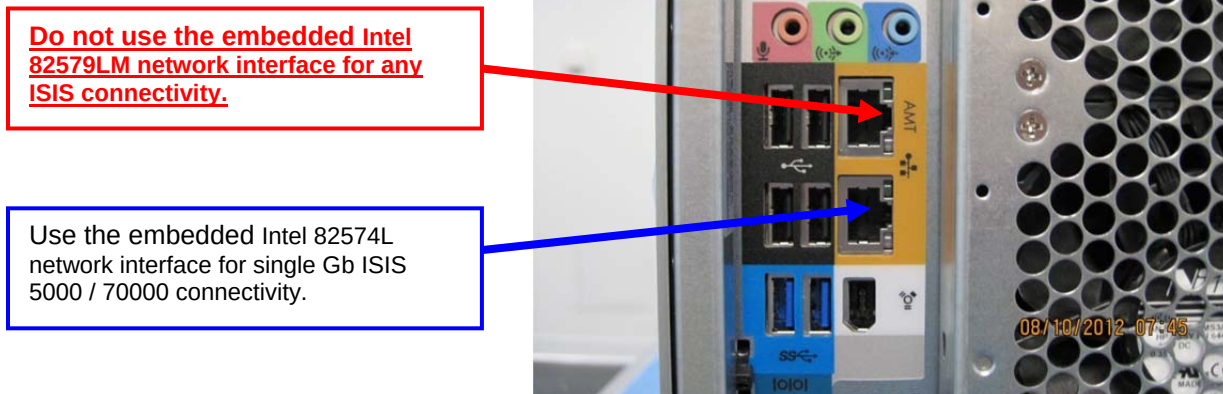
4.) Slot Configuration:

Slot Configuration Information			
Slot #	Electrical	Mechanical	
1	x4 PCI-E Gen 3	x8 Open-ended Connector	Vendor Qualified 3rd Party Hardware PCI-e Interface requiring: x4 PCI-E or lesser interface ¾ Length PCI form factor or smaller <u>OR</u> (Secondary slot location) Local SAS Storage controllers: Atto R680 LSI 9200-8e
2	x16 PCI-E Gen 3 (225Watts)	x16	Graphics Card: Nvidia K4000 or Quadro 4000
3	x8 PCI-E Gen 3	x16	Shared Storage Controllers ISIS 5000 / 7000: Intel PRO 1000 PT Intel PRO 1000 PF Intel i350-T2 Myricom 10G-PCIE-8B-S <u>or</u> Pro Tools HDX h/w <u>or</u> Red Rocket Accelerator
4	x16 PCI-E Gen 3	x16	Local SAS Storage Controllers: Atto R680 LSI 9200-8e <u>or</u> Pro Tools HDX / HD Native h/w <u>or</u> Red Rocket Accelerator
5	x4 PCI-E Gen 2	x16	Avid HIB, DX Interface HBA Active: 7030-30048-01 & 7030-20084-01 Passive: 7030-30021-01
6	x16 PCI-E Gen 3	x16	Vendor Qualified 3rd Party Hardware PCI-e Interface requiring: x8 PCI-E or greater interface Full - Length PCI form factor <u>or</u> Red Rocket Accelerator
7	PCI-E 32bit /33MHz	PCI 32/33	Secondary SAS Port Break-out connector (Embedded)
	Embedded Intel 82574L Gb NIC	PCI-E x1 Gen 1	<i>Qualified for Avid ISIS 5000 / 7000 connectivity. This is the NIC port adjacent to the Firewire port</i>
	Embedded Intel 82579LM Gb NIC	PCI-E x1 Gen 1	<i>Do not use for ISIS. Not qualified and is not functional with ISIS 5000 / 7000. This is the NIC port adjacent to the blue and green audio jacks</i>

5.) Use of embedded NIC ports for ISIS connectivity **Important Information**

The Z820 has two embedded NIC ports. One port is the 82574L. The 82574L port is qualified for ISIS and should be used for single Gb connectivity to ISIS 5000 / 7000. The 82574L port is the port directly above the Firewire port. The other embedded NIC port is an 82579LM. The 82579LM will not work with ISIS and should never be connected to either ISIS 5000 or 7000. The 82579LM port is marked with the letters AMT and is adjacent to the blue and green audio jacks.

Embedded Intel network interface for ISIS connectivity:



For proper operation and connectivity of the Intel 82574L network interface with ISIS the following settings are required:

1. For the Intel 82574L driver, under the performance settings, change the following parameters:
 - Receive Buffers to 1024
 - Transmit Buffers to 1024
2. Disable the windows firewall.

6.) Utilization of the Z820 embedded (on-board) 1394 ports for Camera / Deck / Disk Drive support

Media Composer / Symphony 6.0 and NewsCutter 10 do not support Avid 1394 hardware such as Adrenaline and 1394 Mojo-SDI. This simplifies utilization of the Z820 embedded 1394 ports. The embedded 1394 ports can and should be used for all 1394 Camera / Deck / Disk Drive connectivity for all configurations running Media Composer / Symphony 5.5.x and NewsCutter 9.5.x and higher.

7.) Various Configuration Details:

A.) D/X hardware configs –

All 3 versions of the DX interface HBA are supported for the Z820 with Media Composer / Symphony and NewsCutter

- 1) Active DX interface HBA 7030-30048-01
- 2) Active DX interface HBA 7030-20084-01
- 3) Passive DX interface HBA 7030-30021-01

Active DX interface HBA 7030-30048-01



Active DX interface HBA 7030-20084-01



Passive DX interface HBA (7030-30021-01)



B.) Qualified Avid system BIOS version(s): (As of this writing):

Failure to update the Z820 to an "Avid qualified BIOS" and set the BIOS settings per the instructions below may result in non-optimal operation of the AVID software and hardware.

- Minimum BIOS ver 1.12
- Also qualified BIOS ver 1.14, 2.08, 3.06

Current Avid qualified Z820 BIOS information is maintained at the following Avid KB link:

http://avid.force.com/pkb/articles/en_US/troubleshooting/en267609

C.) Required system BIOS settings for AVID environments:

Hyper-Threading Setting:

***Please Note:** CPU Hyper-threading should be enabled in all configurations per the chart below. It is currently enabled by default by HP for shipping Z820's with BIOS ver 1.12 or later*

Software Version	Hyper-Threading Setting	
	Dual 6-core CPU	Dual 8-core CPU
Media Composer v5.5.x , 6.x Symphony v5.5.x , v6.x NewsCutter v9.5.x , v10.x	Enabled (Mandatory)	Enabled (Mandatory)

Z820 Required system BIOS changes:

1. Verify CPU Processors are set to Hyper-Threading – Set per chart above. BIOS v1.12 and later has Hyper-Threading enabled by default
2. Set Memory NUMA – Disable
3. Set Runtime Power Management - Disable
4. Set Idle Power Savings - Normal

Z820 Optional system BIOS change:

1. Set Intel Turbo Mode** – Disable

****** Only required if connecting USB audio I/O devices. This setting will eliminate any audio "motor-boating" or audio "popping" which may be experienced with USB audio I/O devices.

Set Z820 Required system BIOS changes:

- During boot up press F10 at the HP splash screen to invoke Set Up.
- Select the Advanced tab
- Select Device Options <Enter>
- Select Hyper-Threading
- Verify setting is Enable
 - If Hyper-Threading is set for Disable then it must be changed to Enable
- Hi F10 to save the Hyper-Threading setting
- Select the Power tab
- Select OS Power Management <return>
- Select Runtime Power Management
- Default setting is Enable
 - Change this setting from Enable to Disable
- Select Idle Power Savings
- Default setting is Extended
 - Change this setting from Extended to Normal
- Hi F10 to save the Runtime Power Management and Idle Power Savings settings
- Select Advanced Tab
- Select BUS options
- Select NUMA
- Default setting is Enable
 - Change this setting from Enable to Disable
- Hi F10 to save the NUMA setting
- Press F10 twice to Save
- Save Changes and Exit
- System will Reboot

Set Z820 Optional system BIOS setting: ****** Only required if connecting USB audio I/O devices.

- Select the Power tab
- Select Hardware Power Management <Enter>
- Select Turbo Mode
- Default setting is Enable
 - Change this setting from Enable to Disable
- Press F10 twice to Save
- Save Changes and Exit

D.) Nvidia Qualified Driver:

Nvidia qualified drivers

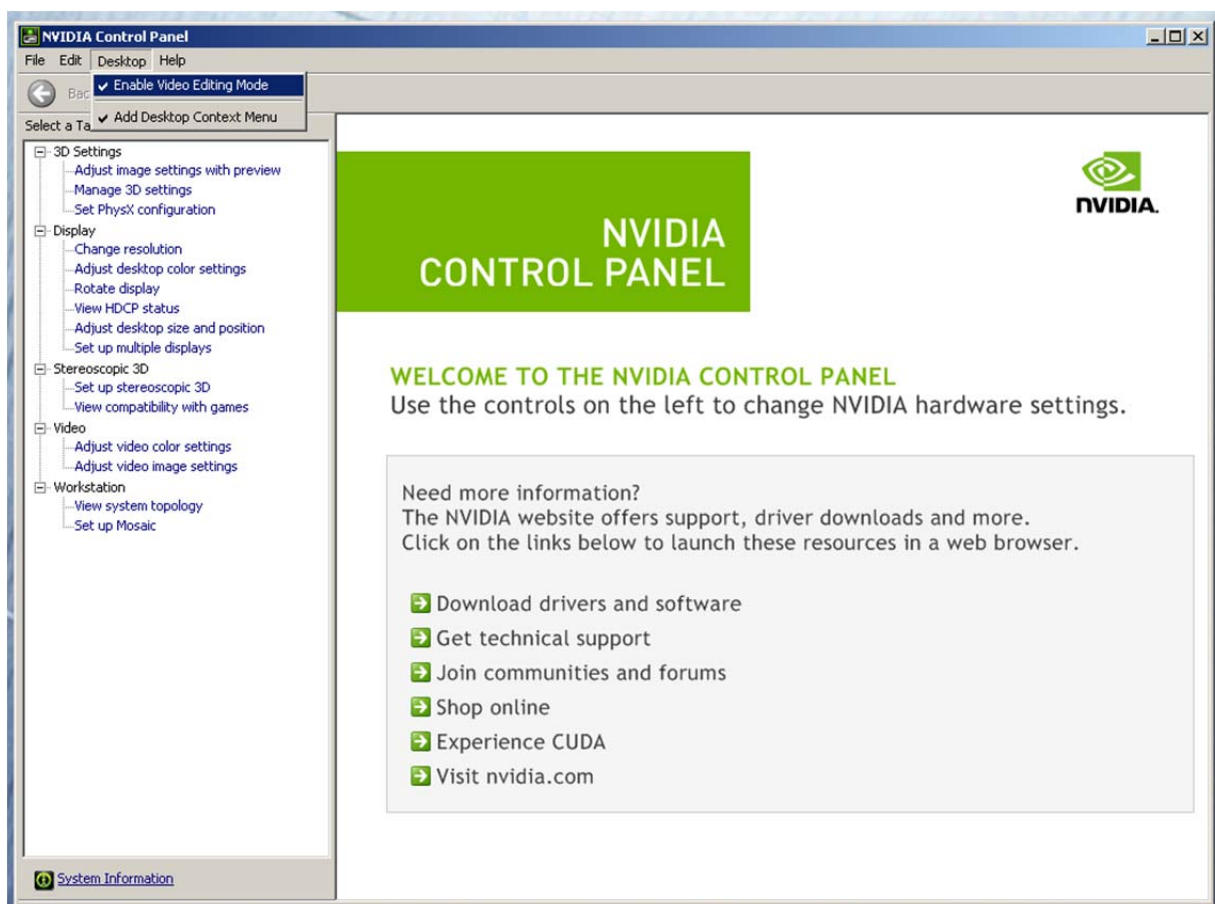
AVID Software	Version(s)	Nvidia Driver required	Nvidia GPU
Media Composer / Symphony NewsCutter	6.0.3.4 and later 6.5.2.1 and later 5.5.3.7 and later (for version 5.5.x) 10.0.3.4 and later 10.5.2.1 and later	310.90	K4000 Quadro 4000
Media Composer / Symphony NewsCutter	6.0 and later 10.0 and later	275.89	Quadro 4000
Media Composer / Symphony NewsCutter	5.5.3.6 and later 9.5.3.6 and later	259.77	Quadro 4000

After installation of the AVID software the supported Nvidia driver can be found in the following directory:
[Program Files / Avid / Utilities / Nvidia](#)

Please Note: If the Nvidia driver ver 310.90 is not included with the Avid s/w version being installed, the Nvidia driver ver 310.90 can be found on the Avid Knowledge Base.

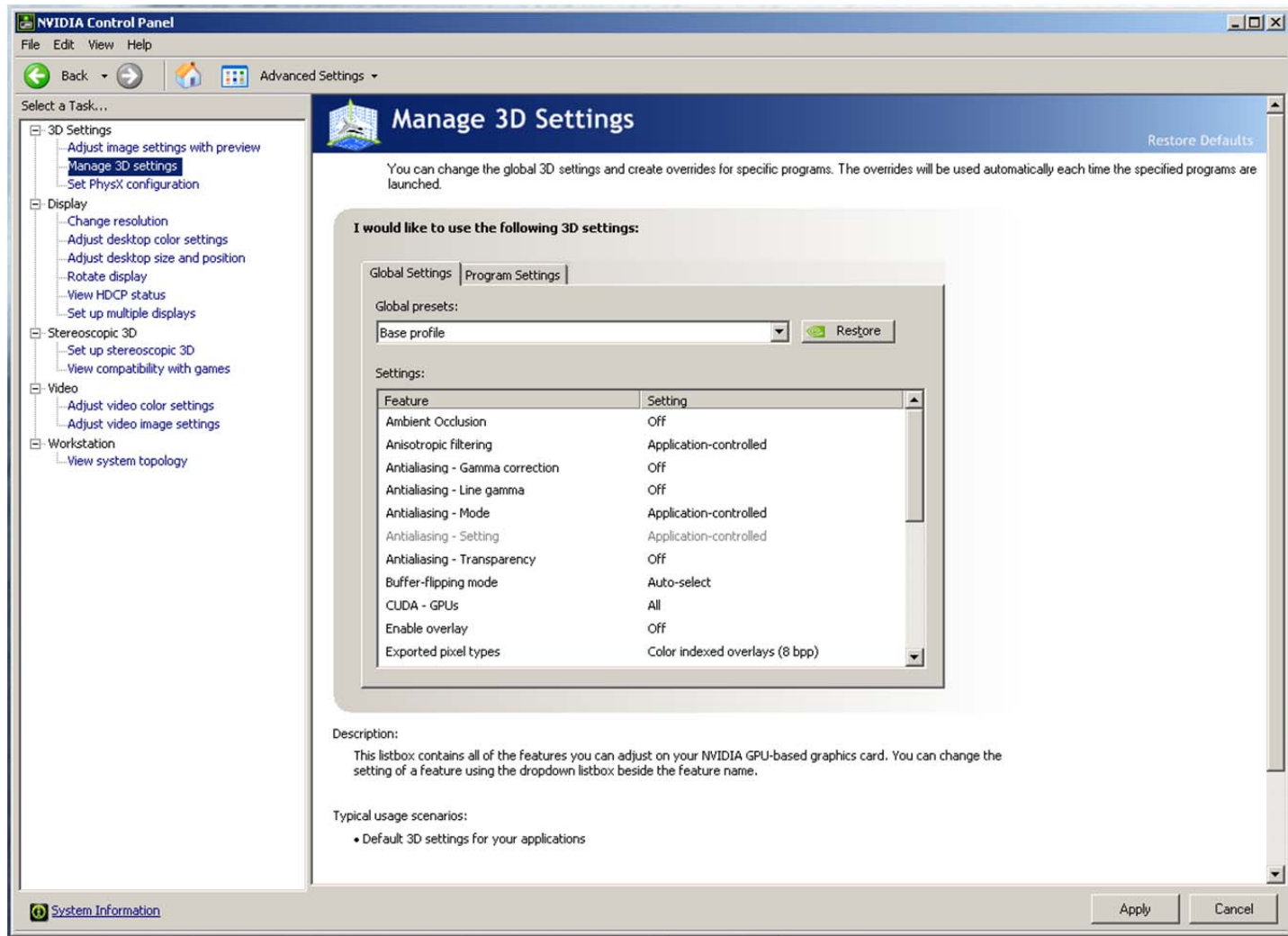
Set optimized Nvidia driver settings for Avid editing environments:

1. See picture below
2. Right-Click on the desktop and select Nvidia Control Panel
3. (For driver version 275.89 and 310.90 only) Select the "Desktop" menu selection in the control panel menu bar.
4. (For driver version 275.89 and 310.90 only) Enable "Desktop -> Video Editing Mode

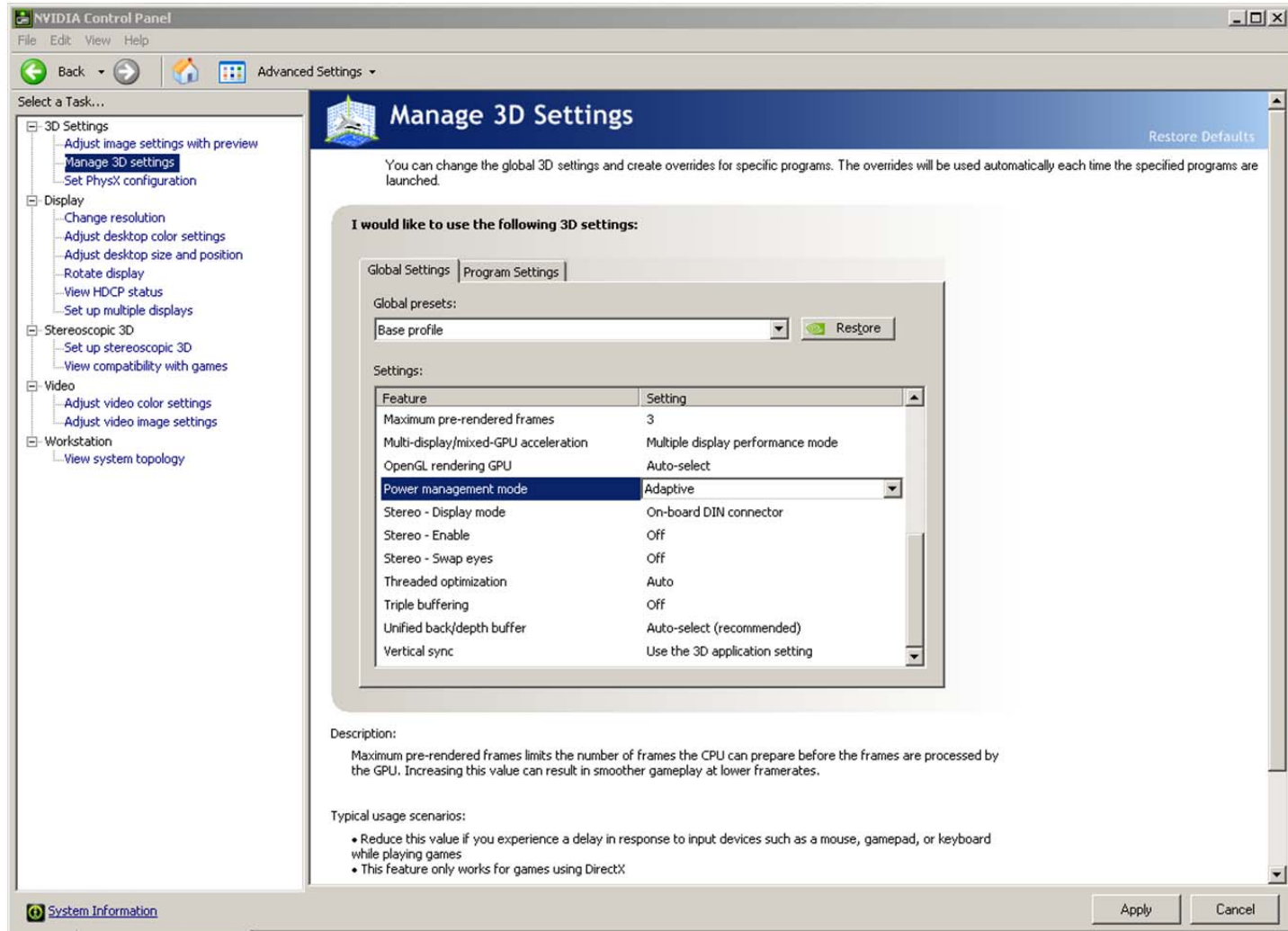


(For drivers' versions 310.90 , 275.89 and 259.77)

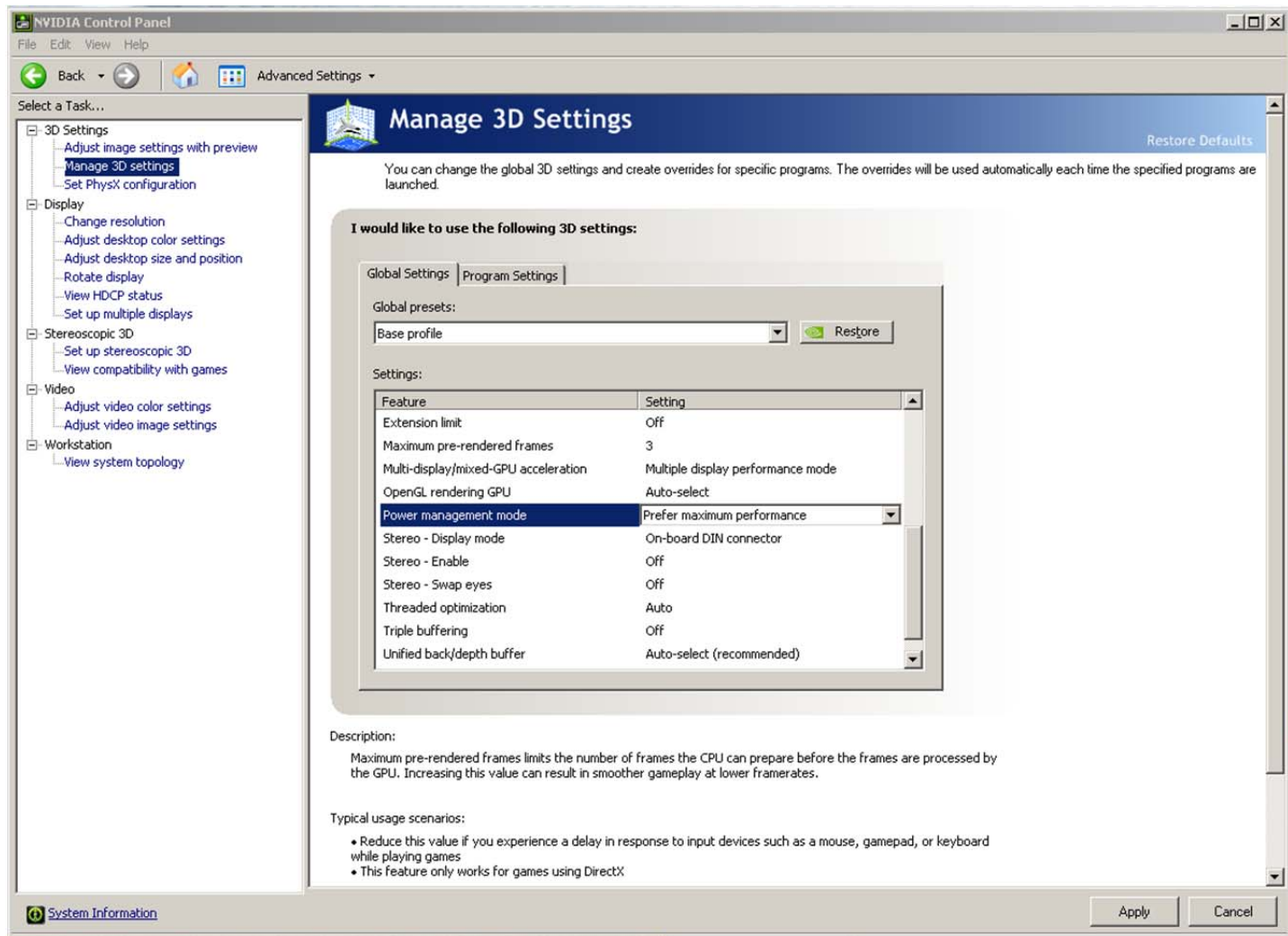
5. Select Manage 3D Settings
6. Select "Global Settings" Tab
7. Under the "Global Settings" tab select "Base Profile" as shown in the picture below:



8. Scroll down and locate the “Power Management Mode” feature. The default setting is “Adaptive” as shown in the picture below.



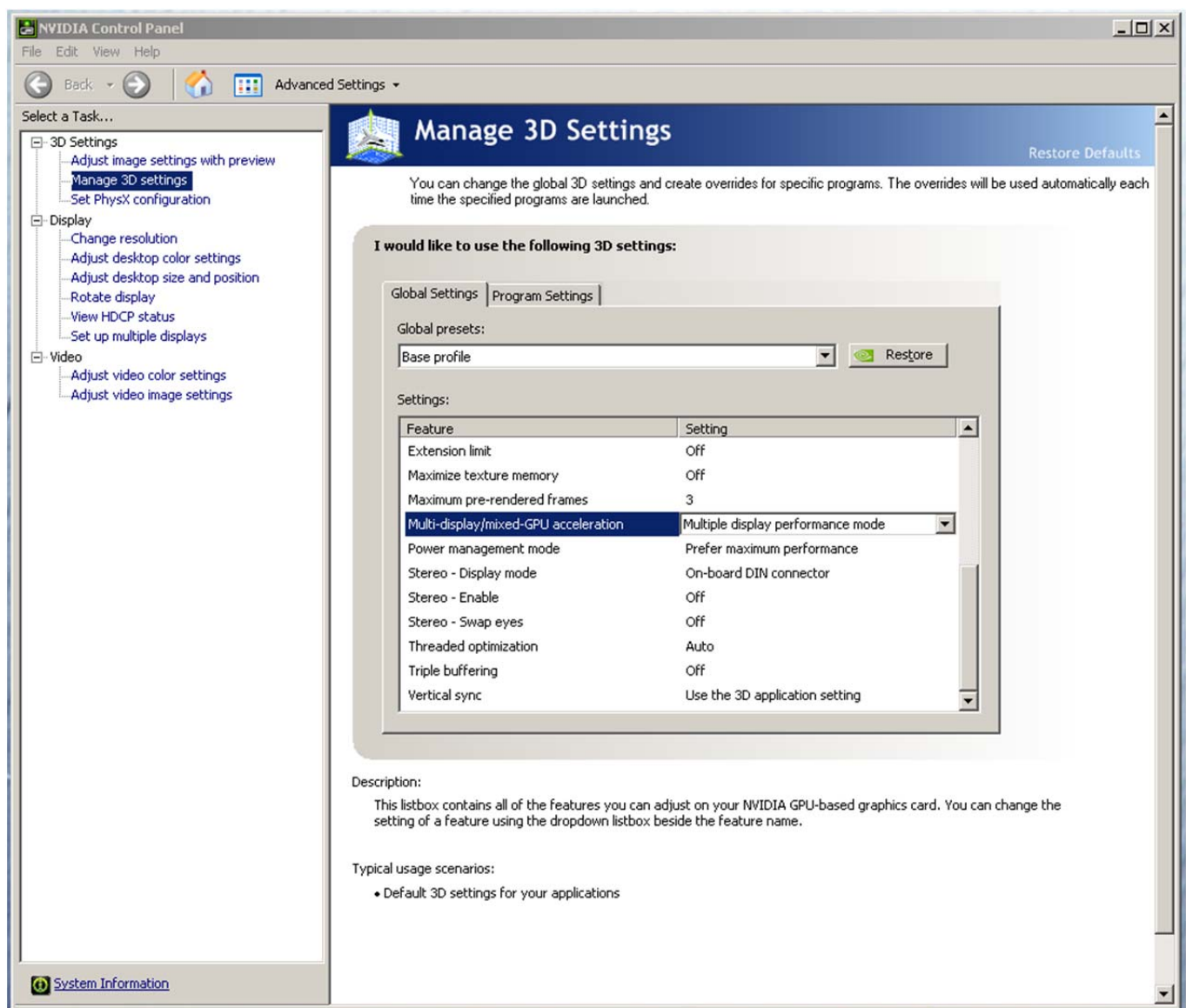
9. For the “Power management mode” feature, select “Prefer maximum performance” as shown in the picture below.



10. Depress the “Apply” button.

Make the following setting for “Multi-display/mixed-GPU acceleration”

11. Stay in the “Manage 3D Settings” and “Base Profile” area
12. Select “Global Settings” Tab
13. Scroll down and locate the “Multi-display/mixed-GPU acceleration” feature. See picture below. The setting should be set to “Multiple display performance mode”. If not set properly, select Multiple display performance mode and depress the “Apply” button. (The other settings are “Single display performance mode” and “Compatibility performance mode”. These settings are not recommended for Avid editing environments).



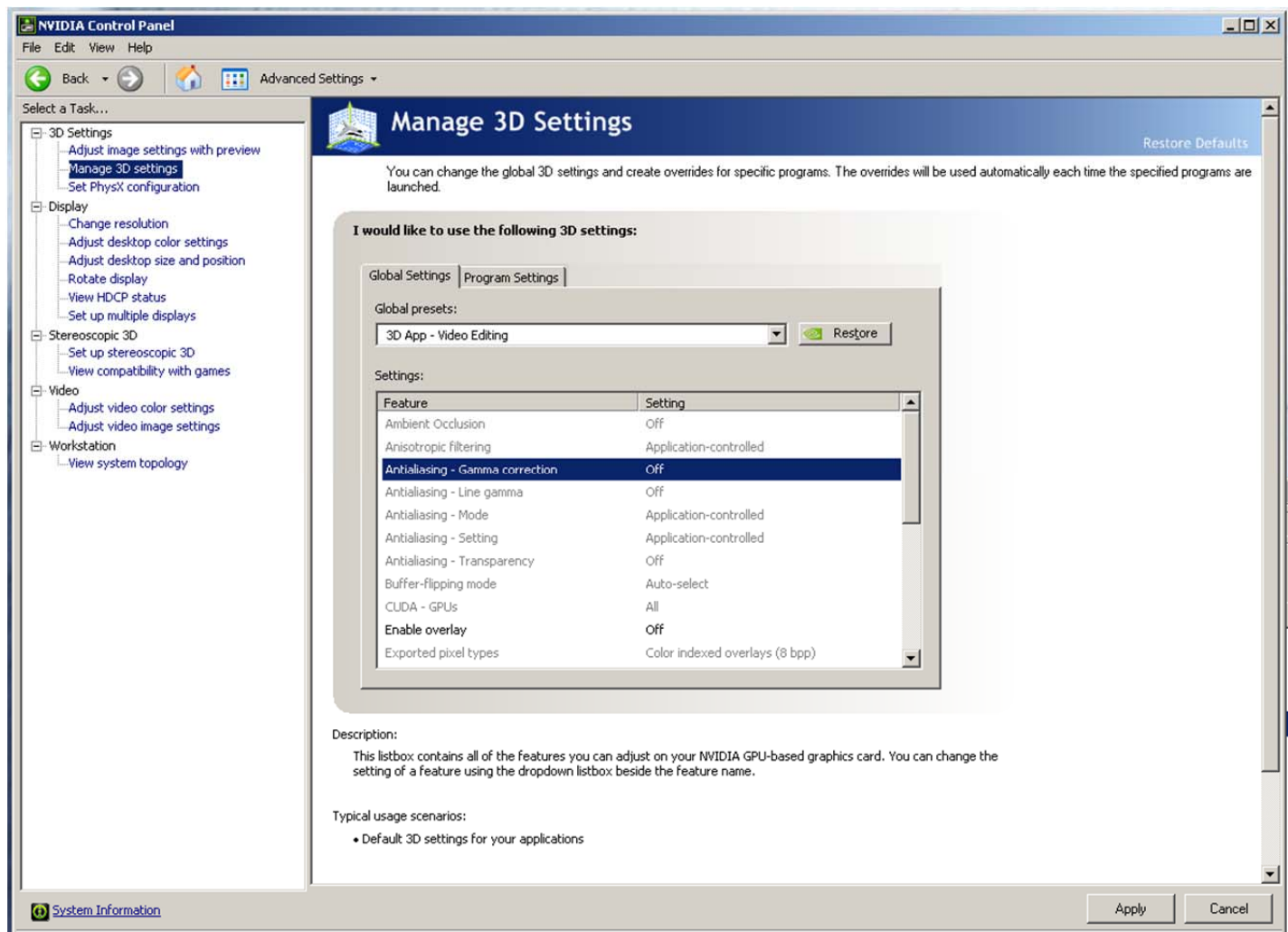
Make the following additional setting for “3D App-Video Editing”

(Only for driver versions 275.89 and 310.90)

14. Stay in the “Manage 3D Settings” area

15. Select “Global Settings” Tab

16. Under “Global Settings” tab select “3D App-Video Editing” setting as shown in picture below:



17. Depress the “Apply” button

18. Nvidia driver optimization settings for Avid environments are complete.

E.) Nvidia Quadro GPU monitor connectivity:

The Nvidia Quadro 4000 and K4000 graphics cards have a single DVI port and two Display-Port ports

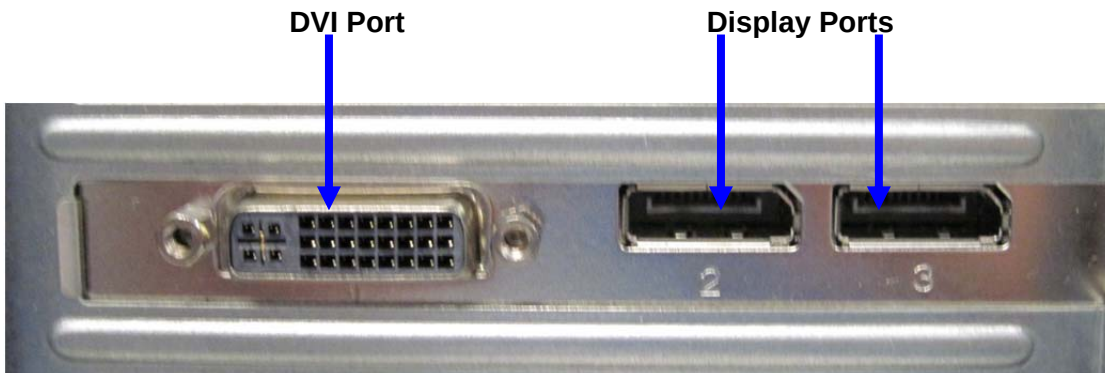
(Important: Display-ports are not HDMI ports; at first glance they do look very similar to HDMI ports)

(Please Note: Only two of the three video ports can simultaneously be used. Connecting to all three video ports at the same time will result in non-functioning video output from the Nvidia GPU video card.)

The HP Z820 includes one Display-Port-to-DVI adapter. HP P/N 481409-002

For dual monitor connectivity:

1. Use the DVI port and one Display-Port (Display-Port connection can be native display-port to monitor via display-port connection, or use the display-port-to-DVI-adapter supplied with the system to connect to a native DVI monitor).
2. Or use two Display-Ports *(Requires monitors with native display-port connections, two display-port to DVI adapters are not recommended when using dual display-port connections).*



F.) Serial Port Deck Control:

Serial Port Deck Control:

The HP Z820 workstation does have an embedded serial port. The embedded serial-port has been qualified by Avid and will maintain frame accuracy in Avid environments. Primary or secondary / additional serial port deck control can be established via two methods (both of which have been qualified by Avid and will maintain frame accuracy in Avid environments)

1. Addenda model **RS-USB / 4** direct USB-to-RS422 serial adapter. This is a simple device which connects directly from a USB port of the Z820 directly to the RS422 port of a deck.
<http://www.addenda.com/addenda-elect/products/rsUSB4.php>
2. Combination of a Keyspan (Tripp-Lite) Model USA-19HS USB-to-serial-port adapter with Addenda Rosetta Stone model RS – 2/8 RS232-to-RS422 converter
 - Keyspan (Tripp-Lite) Model USA-19HS (AVID P/N 7080-20013-01)
<http://www.tripplite.com/en/products/model.cfm?txtSeriesID=518&EID=13384&txtModelID=3914>
 - Addenda Rosetta Stone (or equivalent) model RS – 2/8 RS232-to-RS422 converter (AVID P/N 7070-00507-01)
<http://www.addenda.com/addenda-elect/products/rs28.php>

To connect the Keyspan 19HS / Addenda RS -2/8 combination:

- Install the Keyspan 19HS driver before plugging the device into a Z820 USB port.
- Once the Keyspan 19HS driver is installed then plug the Keyspan 19HS into a Z820 USB port.
- The Keyspan 19HS will now show up in device driver.
- Using a serial cable, connect the 9-pin serial port of the Keyspan 19HS USB adapter to the port of the Addenda marked RS232 from PC
- Using a 2nd serial port cable connect the port of the Addenda marked “RS422 to VTR” to the deck control serial port of the deck.

G.) O.S. setting recommendations for optimum performance with Avid Editing applications:

The following links provide O.S. setting suggestions for ensuring optimum performance when working with your Avid editing application with a Windows operating system.

- Optimizations for Video Editors - Windows 7

<http://avid.custkb.com/avid/app/selfservice/search.jsp?DocId=390339>

H.) Supported external local SAS storage connectivity via embedded SAS controller ports:

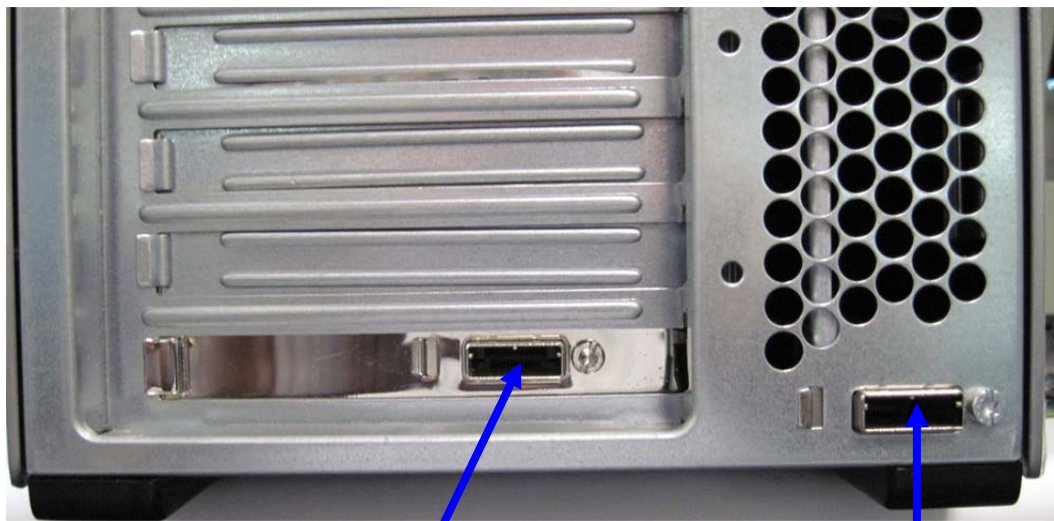
Supported

- AVID VideoRAID SR (16-bay)
- Xtore StudioRAID 16Re (16-bay) / 5Te (5-bay) chassis

The Z820 can support:

- Up to two external AVID VideoRAID SR (16-bay) SAS local storage chassis
- Mix and match of up to two external Xtore StudioRAID 16Re (16-bay) / 5Te (5-bay) chassis

Simultaneous connectivity of AVID VideoRAID and Xtore chassis is not formally qualified or recommended.

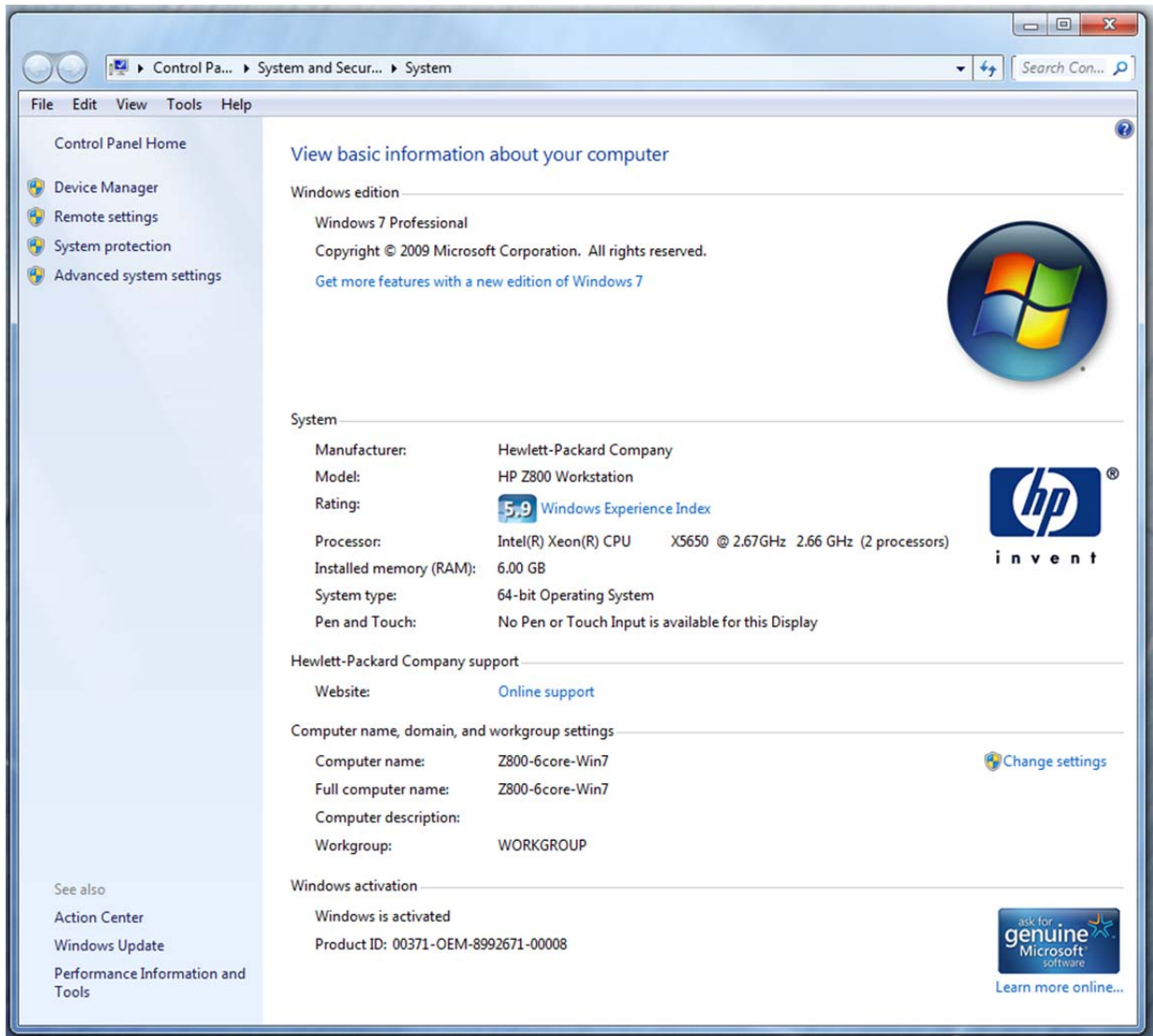


External SAS Port 2

External SAS Port 1

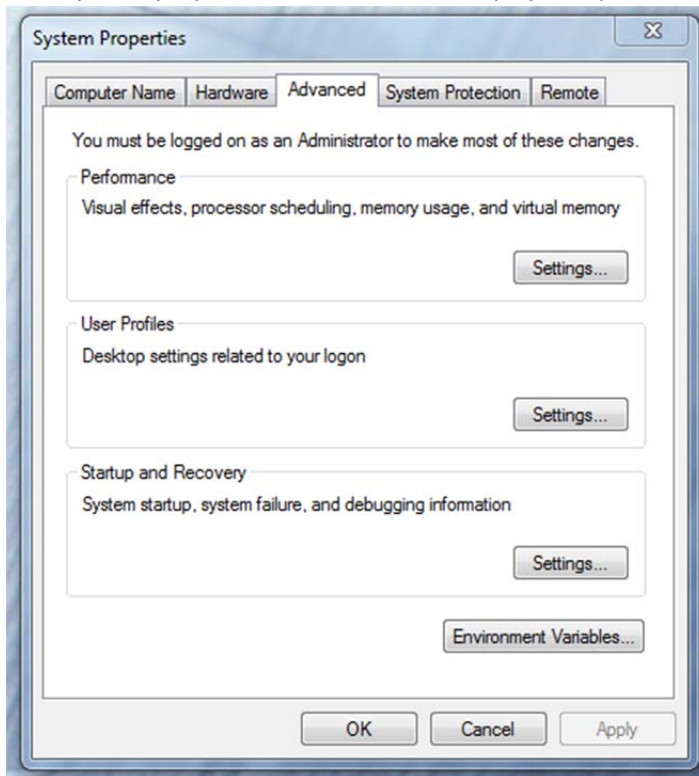
I.) Set Windows “Visual Effects” for “best performance”:

1. Right-Click on My Computer / Computer
2. Select Properties
3. The screen below will be displayed:

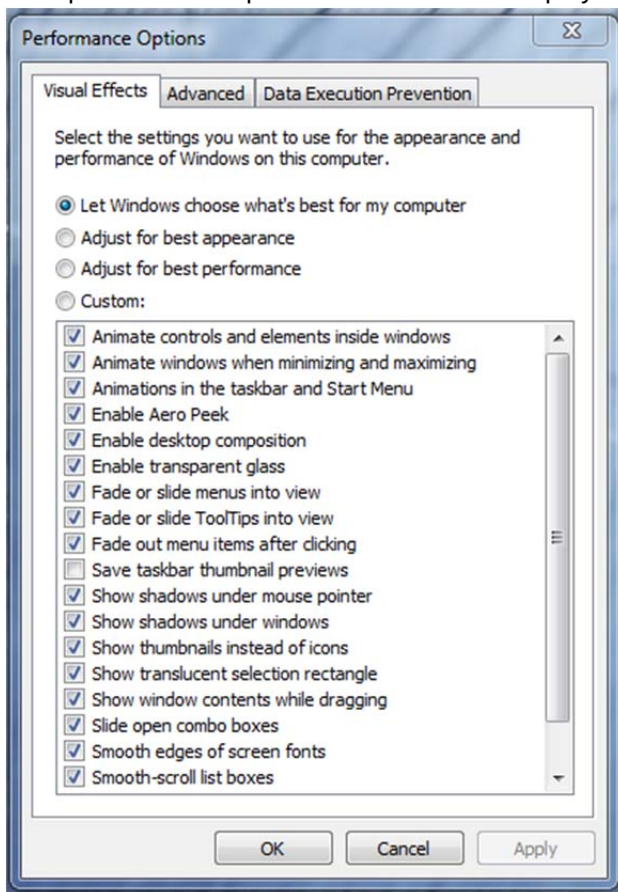


4. On the left side of the screen above, locate and select “Advanced system settings”

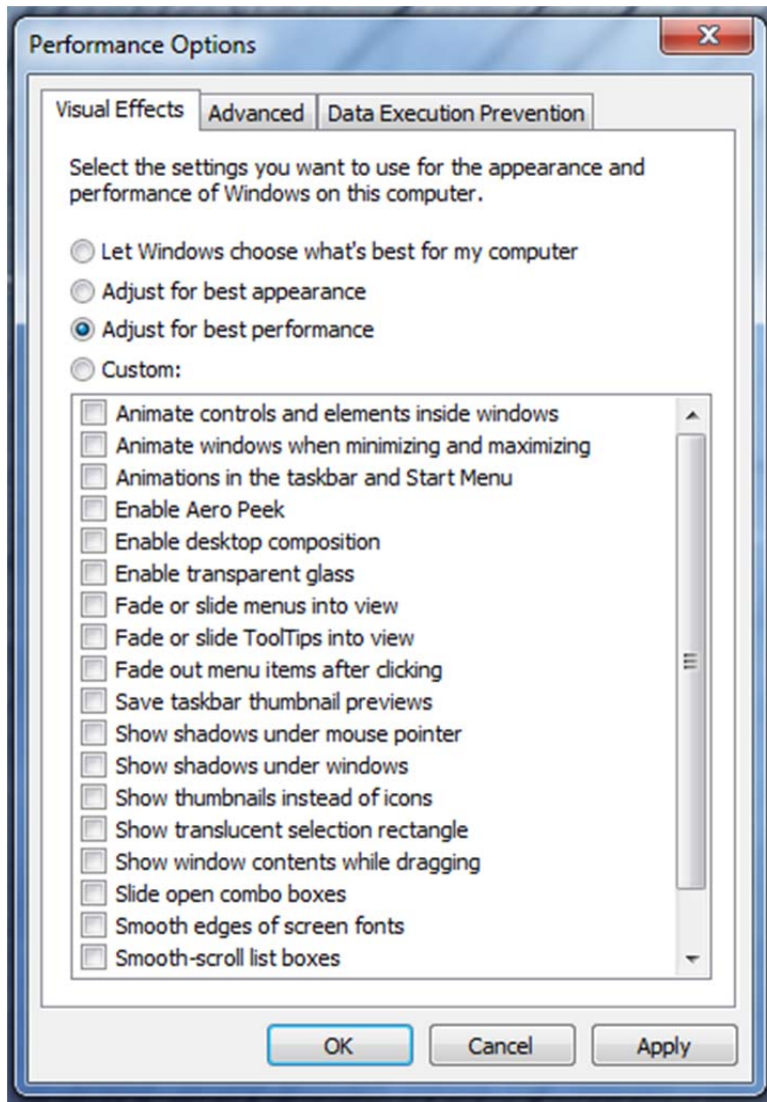
5. The System properties window will be displayed. (Picture below).



6. Under the “Advanced” tab depress the “Settings...” button for performance.
7. The “performance Options” window will be displayed. (Picture below).



8. Under the “Visual Effects” tab select the “Adjust for best performance” selection. (Picture below).



9. Depress the “Apply” button
10. Reboot Windows
11. Required Windows visual performance settings for Avid environments are now complete.

J.) Intel NIC Port(s) for ISIS connectivity:

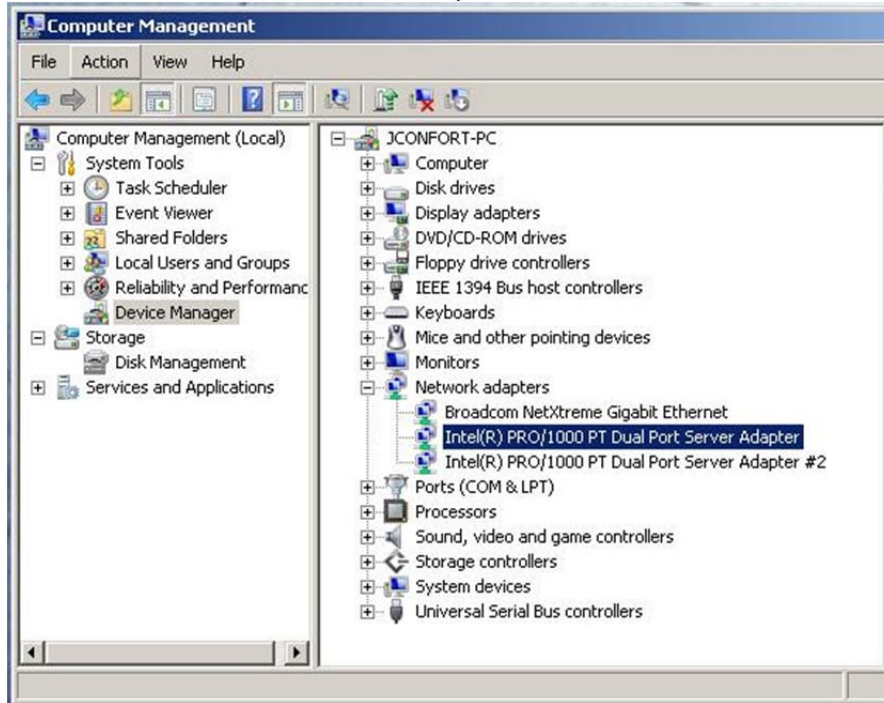
Embedded 82574L port / Intel PRO 1000 Dual Gb HBA / Intel i350-T2 Dual Gb NIC HBA

For proper operation and connectivity of any Intel NIC port used with ISIS the settings below are required.
Example below is for the Intel PRO 1000 PT.

1. For the performance settings, change the following parameters:
 - Receive Buffers to 1024
 - Transmit Buffers to 1024
2. Disable the windows firewall.

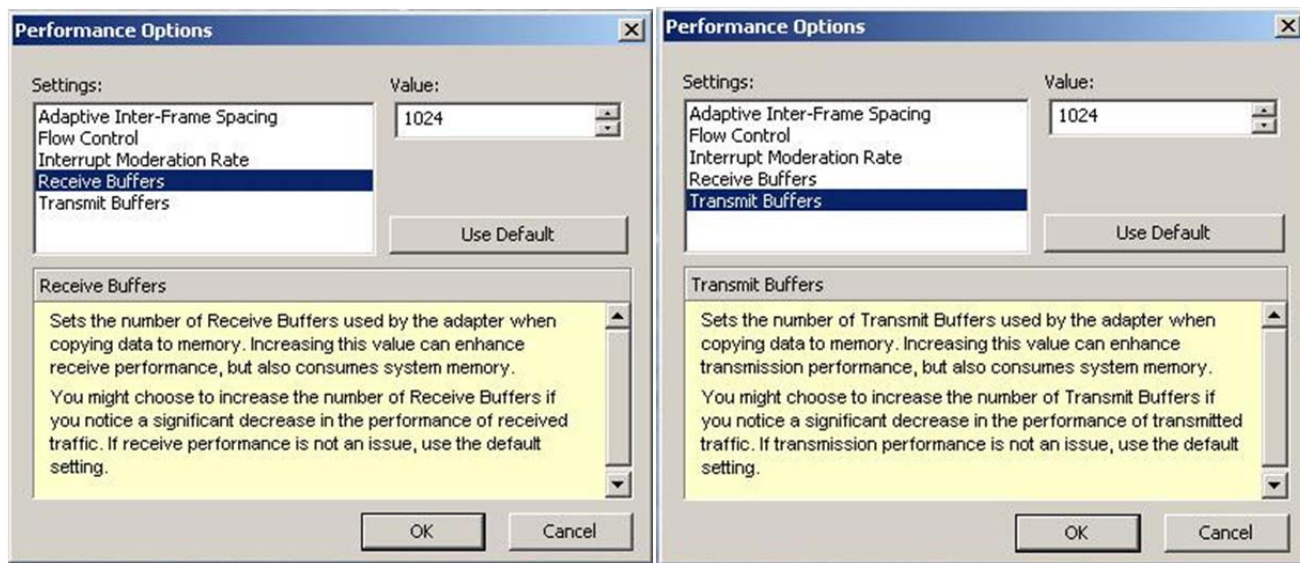
To set the Intel NIC Receive / Transmit buffers:

Go to device manager and select each instance of the network adapter device which will be used for ISIS connectivity.



Select performance options and then select Properties.

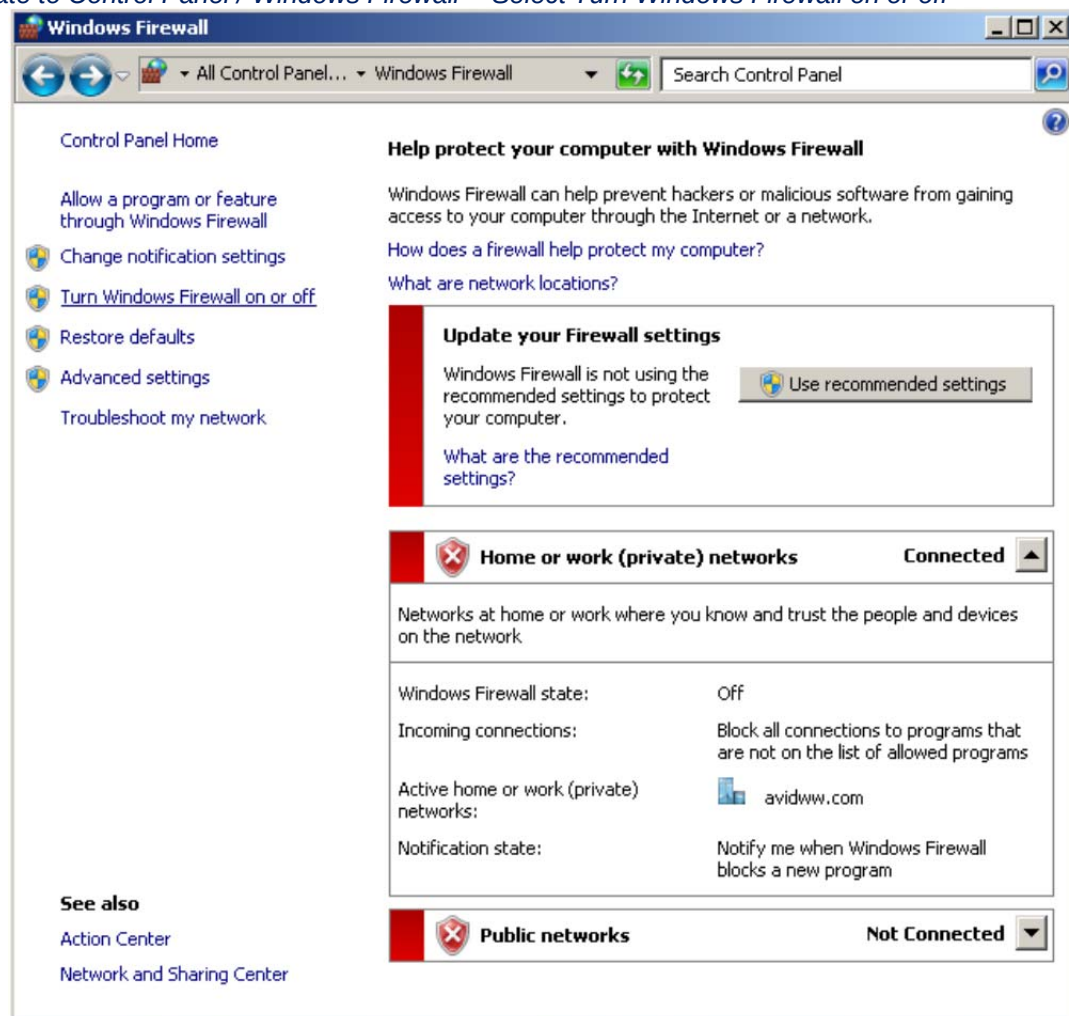




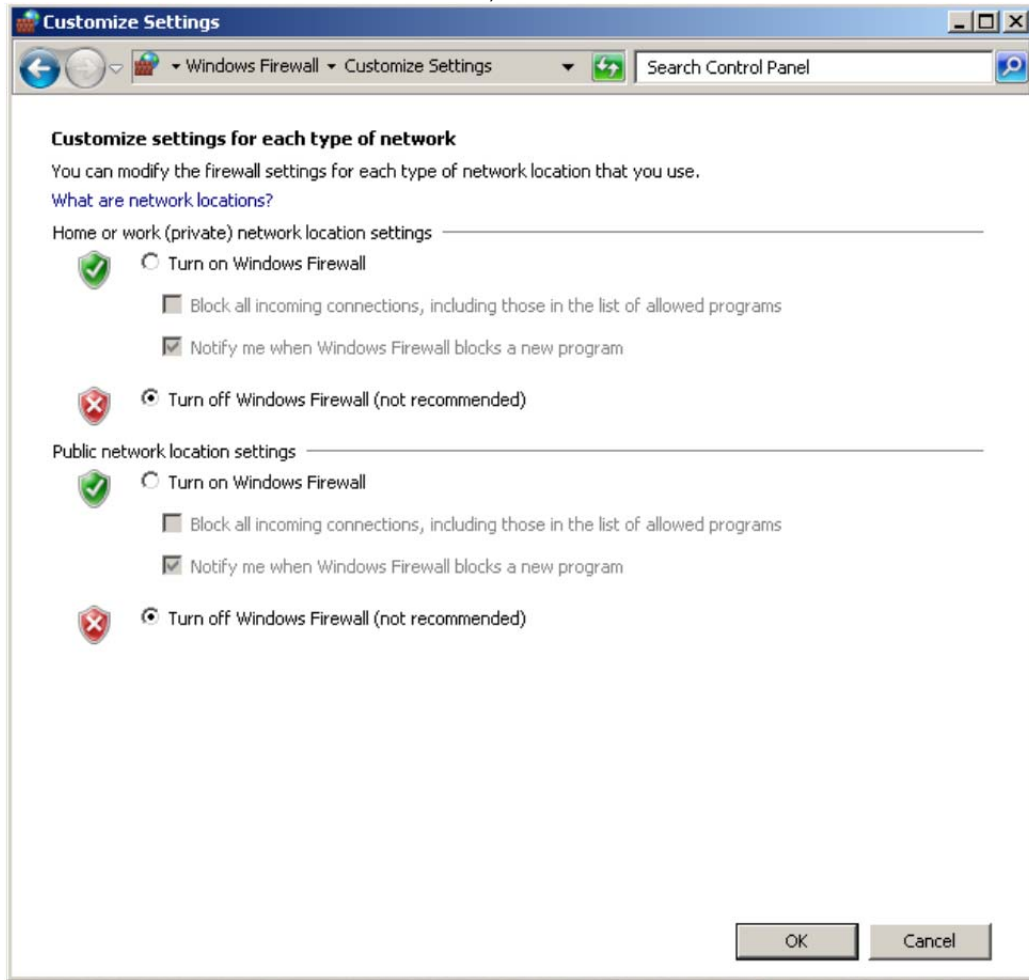
Perform this for each instance of and Intel NIC port which will be used for ISIS connectivity.

K.) Disable the windows firewall:

Navigate to Control Panel / Windows Firewall -- Select Turn Windows Firewall on or off



Select Turn off windows firewall in both network locations, OK to save



Revision Update

Revision	Date	Name	Update
A Initial Release	Sept 18 th , 2012	Joe Conforti	Initial release of the Z820 configuration guide for support of Media Composer 6.x, Symphony 6.x and NewsCutter 10.x
B	Dec 27 th , 2012	Joe Conforti	Added additional support for the 6-Core Xeon® E5-2640 @ 2.5GHz Processors which are now qualified for Media Composer 5.5.3.6, Symphony 5.5.3.6 and NewsCutter 9.5.3.6 or higher. Added note clearly stating that the 8-Core Xeon® E5-2665 Processors @ 2.4GHz 20MB cache are qualified <u>only for</u> Media Composer 6.x , Symphony 6.x and NewsCutter 10 or higher Added support for 32GB memory Defined different video driver settings for ver 275.89 (used with Media Composer / Symphony 6.x and NewsCutter 10.x) ver 257.99 (used with Media Composer / Symphony 5.5.x and NewsCutter 9.5.x) Stated BIOS ver 1.14 and ver 2.08 are qualified
C	Jan 24 th , 2013	Joe Conforti	Added additional memory configurations using 4GB DIMMs, corrected naming convention for Pro Tools hardware (HDX , HDX / HD Native)
D	May 1 st , 2013	Joe Conforti	Added support for Nvidia K4000 GPU, Nvidia driver ver 310.90, changed KB link for system BIOS info, added supported system

			BIOS versions, misc corrections